

# Wireless communications and mobile networks project report

文轩

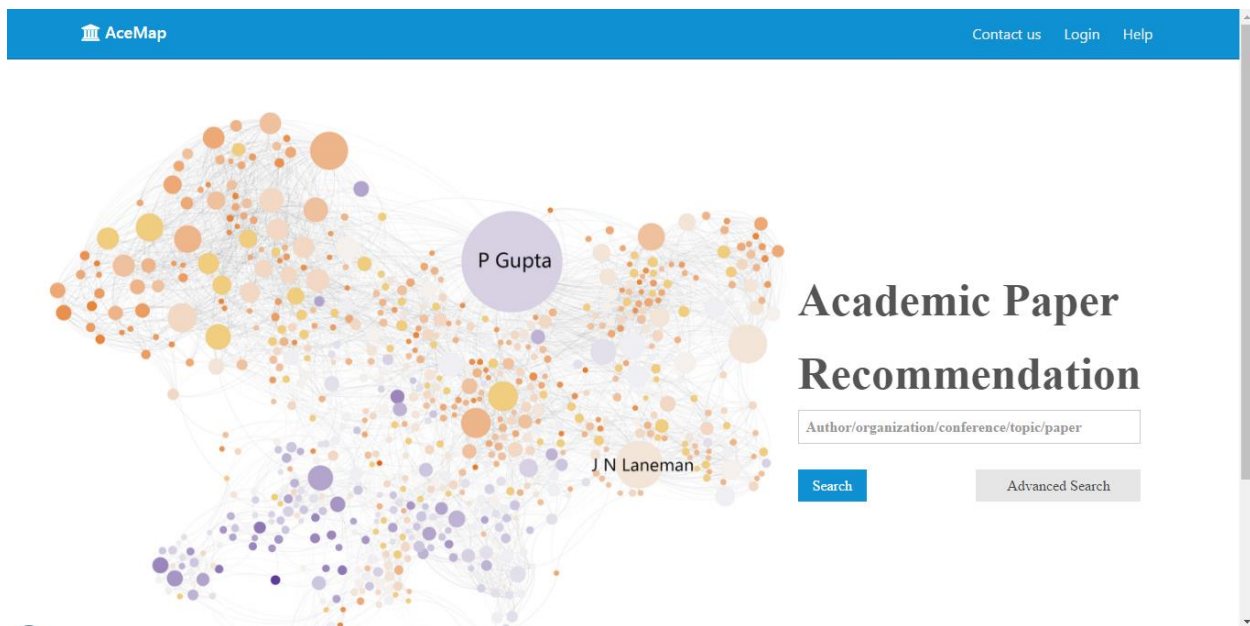
2016.06.25

Instructor name: 王新兵

## Brief Introduction

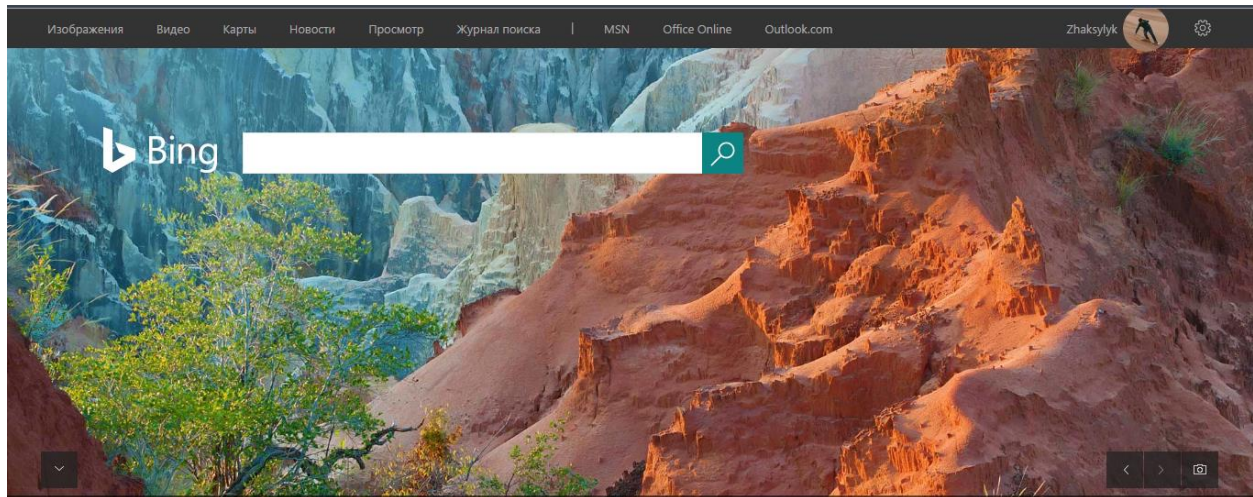
This semester I participated in Acemap website group where we made website user interface more user friendly and to deliver visual information about paper to our users. Then I also tried to data mine information from famous Russian social network called vk.com

## Acemap homepage



Acemap homepage

In this regard we were highly inspired by bing.com search engine's homepage. On the left side there is a paper map and on the right side there is a search box. Also using buttons on the bottom you can change graphs or get more information about academic stars or best papers.



Bing homepage

## Paper map

**Paper Map** is a map generated by a specific topic. Each point represents a paper in this field. The link between two points indicates that there is reference relation between the papers. The color of a point shows the publication time of the paper. The deeper the orange is, the earlier the year is; and the deeper the purple is, the later the year is.

## Search box

You can search papers by author's name, organization, conference, topic name or paper name. As a result, you can get author's charts of publication years, citations by field, related authors graph and research interests word cloud. You can also see author's affiliation and recommendations by interests and relations and, of course, papers. You can sort results by

time and paper rank. You can also request topic map

**Steven D Tanksley**

**Publication**

Category	Not First Author	First Author
Total	~250	~30
SCI	~220	~30
EI	~30	0

**Citation**

Category	Count
SCI	~220
EI	~30

**Papers** (Ranking by Time)

- 2013 The Impact of Recombination on Short Term Selection Gain in Plant Breeding Experiments  
http://eprints.icrisat.ac.in/10843/  
Theoretical and Applied Genetics  
- Benjamin McClosky, Steven D Tanksley
- 2013 Selfing For The Design of Genomic Selection Experiments in Biparental Plant Populations  
http://eprints.icrisat.ac.in/11253/  
Theoretical and Applied Genetics  
- Benjamin McClosky, J Lcombe, Steven D Tanksley
- 2012 Nucleic Acids and Proteins Associated With Sucrose Accumulation in Coffee  
http://www.freepatentsonline.com/y2012/0060235.html  
- Isabelle Privat, James Gerard Mccarthy, Vincent Petiard, Steven D Tanksley, Chenwei Lin
- 2012 The Tomato Genome Sequence Provides insights into Fleshy Fruit Evolution  
http://adsabs.harvard.edu/abs/2012Natur.485.635T  
Nature  
- Shusei Sato, Satoshi Tabata, Hideki Hirakawa, Erika Asamizu, Kenta Shirasawa, Sachiko Isobe, Takeshi Kaneko, Yukio Nakamura ...
- 2012 Location Dependent Empirical Thresholds For Quantitative Trait Mapping  
http://europepmc.org/articles/PMC3429917?pdf=render  
G3: Genes, Genomes, Genetics  
- Jason Lacombe, Benjamin McClosky, Steven D Tanksley

### Search result example

After finding paper you can download it, see basic information, rate it or discuss it.

**Selfing For The Design Of Genomic Selection Experiments In Biparental Plant Populations**

**INFO** | ABSTRACT | KEYWORD | REFERENCES | CITES | SIMILAR

**Basic information**

**Authors:** Benjamin McClosky, J Lcombe, Steven D Tanksley  
**Published in:** Theoretical And Applied Genetics  
**Year:** 2013  
**DOI:** 10.1007/s00122-013-2182-x  
**Citations:** 0  
**SCI Citations:** 0  
**EI:** YES

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**Related Authors**

- B Spaan
- W Blann
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- Gary A Rendsburg
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**Related Fields**

- Genetics

# Building friendship graph using data from vk.com(formerly vkontakte.ru)

## Introduction to vk.com

vk.com is the largest social networking service in Europe and it is mainly used by Russian speaking countries. In many ways it is similar to facebook.com or renren.com. Like other social networks, VK allows users to message each other publicly or privately, to create groups, public pages and events, share and tag images, audio and video, and to play browser-based games. VK has 369 million users and it is the most visited website in Russia. After homework about friendship paradox I wanted to see if it is true in my case.

## VK API

You can gather information about your using its API. You can see documentation of its API on <https://vk.com/dev/apiusage> and <https://vk.com/dev/methods> and as well there are wrappers to other languages. In my case I used [https://github.com/python273/vk\\_api](https://github.com/python273/vk_api). It is python 3 wrapper to vk.com's API.

## Example usage of VK API

```
import vk_api

def main():
    """ Authorization example """

    login, password = 'login@vk.com', 'password'
    vk_session = vk_api.VkApi(login, password)

    try:
        vk_session.authorization()
    except vk_api.AuthorizationError as error_msg:
        print(error_msg)
        return

    vk = vk_session.get_api()
```

To get user's friend names and number of friends you use friends.get method.

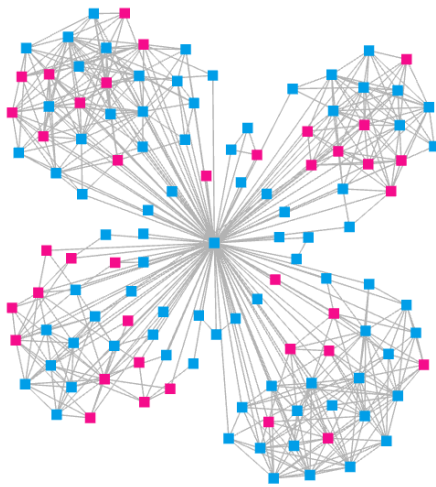
## Friendship paradox using vk data of my page

It turned to be true in my case. I have 120 friends yet my friends on arithmetic mean have 181 friends.

### API restriction

Because of API restriction and with my 120 friends getting friends of my friends is very hard task since number grows exponentially.

### Results



My friendship graph

On the center it is me and there are four very evident clusters. One is my relatives and the other three are from various schools I attended. Pink points are females and blue ones are males.

Because of API restrictions and the fact that number of friends of my friends grow exponentially I couldn't make bigger graph and test friendship paradox for more common case.